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I. Energy for sustainable development

Trends: a deepening energy crisis

1. Despite billions of dollars invested, most energy projects are not supportive of sustainable development. Some 2.4 billion people in developing countries lack modern fuels, 1.6 billion do not have access to electricity. Four energy crises are highlighted in *Our Common Future*,[1] which have deepened.

2. First, despite rapid advances in science and technology, inequality and poverty are on the increase, aggravated by a rapidly urbanizing world. Development and environmental policies also often lead to disproportionate burdens on the poor, discriminate against minorities and violate human rights obligations.

3. Second, economic growth exacerbates resource depletion and environmental degradation, especially in countries where regulatory frameworks and legal constraints are weak or non-existent. In the past 10 years, the gap between the rich and the poor has increased within and between countries. In many countries, the middle class, traditionally a factor in maintaining socio-economic stability, is shrinking dangerously, adding to social unrest.

4. Third, the ecological crisis is deepening. We continue to face soil erosion, shrinking water supplies, water degradation, air pollution, climatic changes, increasing nuclear hazards, deforestation, biodiversity loss and species extinction. Scores of international environmental agreements to protect the environment and natural resources have been ratified, but there is open violation since enforcement and monitoring are weak.

5. Fourth, current patterns of development and energy policies mean we are borrowing from the future and thereby handicapping future generations. These four crises are interlinked and compound each other. The turn of the century has also witnessed the end of cheap energy and brought home the stark reality of dwindling oil and gas reserves. Thus, solutions to the energy crisis are urgently needed; they have to be cross-cutting and must be applied simultaneously.

Challenges: coherent integration and implementation

6. For energy policies to contribute to sustainable development, they must take into consideration all four interrelated areas: economy, science and technology, environment and equity. A number of principles, to which Governments have already committed, must guide decisions regarding new energy investments. These include the polluter-pays principle[2] and the precautionary principle.[3]

7. Only forms of energy that can be integrated into a closed life cycle and do not create externalities, i.e., non-recyclable wastes of any kind, can be considered sustainable over the long term. From an energy perspective, that would include mainly the use of renewable energy and improvements in energy efficiency.

8. The current ideology of developing "heavy", centralized power plants, with huge volumes of emissions under the pretext of economically sound development, is now increasingly hindering sustainable development. Elimination of fossil fuels subsidies, internalization of environmental costs, increased energy efficiency and better knowledge of renewable energy can make energy systems more sustainable.

9. Improved energy efficiency will reduce the use of other natural resources, leading to dematerialization of the economy and restructuring of production processes. Even though the world will remain dependent on fossil fuels for a few decades to come, in most sectors a factor 4-10 increase in energy efficiency is both possible and desirable in a medium-term development scenario.

10. The global economy is not developed according to principles of sustainability, which makes developing sustainable energy increasingly difficult. The following economic developments have exacerbated difficulties:

(a) Globalization, calling for deregulation, rapid liberalization and privatization, impedes access to safe, affordable energy by the poorest of the poor. Cheap energy distributed globally by multinational oil companies helps make the transportation of foreign goods cheaper than local products, undermining the economic, sociocultural and natural fabric of community life;

(b) Privatization of major energy assets, such as dams and big electric power plants, transfers, often at a loss to public authorities, to the private sector investments that have been paid for by the citizens, at the expense of job stability, security and environmental protection;

(c) Economic liberalization makes regulation a despised mode of control of the economy. But current approaches offer little protection against threats, impacting both the environment and quality of life, and threaten human rights. As always, the market system benefits only those with purchasing power.

Actions taken to address the energy challenge

11. Since the energy crises of 1973 and 1979, voluminous research and a host of international conference proposals and solutions within the United Nations and through collaborative efforts by Governments, non-governmental organizations (NGOs) and business have provided frameworks to guide the world community in tackling the energy challenge.

12. All those initiatives show an encouraging level of convergence. They challenge the supremacy of "heavy" polluting energy sources and centralized power generation. They call for the elimination of fossil fuel subsidies, the internalization of environmental costs, increased energy efficiency and better knowledge of renewable energy.

13. In addition, citizens and local authorities both in industrialized and developing countries are mobilizing to effect change, stressing the need for capacity- and institution-building and for creative changes such as the establishment of citizens' utility boards. They insist that energy policy be environmentally driven and that the energy sector be planned and managed for sustainable development. Energy technicians are developing new methodologies and new tools[4] for sustainable energy.

Energy sustainability

14. For energy strategies to be conducive to sustainable development, energy sustainability must first be defined, then measured and monitored. Energy sustainability must be:

(a) Consistent with environmental sustainability. Pollutants related to energy should not exceed the absorptive capacity of the environment (air, water, land), as verified by scientific standards and underpinned by the precautionary principle. Environmental costs for maintaining the full functions of the relevant energy resource or the functions of other natural assets affected by the development and use of energy should be accounted for, collected from the producers and users utilizing the polluter-pays principle and reinvested within the environmental sector. Use of nuclear power, with numerous risks during the fuel-cycle, including the risk of spreading materials for nuclear weapons, as well as unresolved waste problems, is an unsustainable solution to global energy demands;

(b) Consistent with economic sustainability. All foreseeable costs of energy, including externalities, must be accounted for in order to determine the feasibility of projects. If projects are implemented, such amounts must be collected and either used to compensate the losers or invested by or through the public sector in an asset (particularly renewable energy systems) or in a combination of assets that lead to a constant level of income similar to that which originated from the relevant energy resource;

(c) Consistent with social sustainability and human rights. Energy policy should contribute to poverty alleviation and social equity. The development and use of energy should not harm people's health (see the international standards of the World Health Organization (WHO)), involve the loss of jobs or forced resettlements, or violate other established human rights principles, including the right to food and clean water. Where human impacts do occur, health impacts can and should be included in the cost of energy development and use, and reallocated to human health protection;

(d) Consistent with technological sustainability. All countries will be more sustainable technologically if there is a good choice of energy technologies, if they are locally available and if they can increase the level of local technological expertise and innovation, which in turn can lead to the transformation of local raw materials into exportable finished goods. Developing countries can avoid the pollution of industrialization by leapfrogging obsolete technologies.

15. Making the environmental, economic, technological and social implications, and their impact on policymaking, transparent to civil society is important. Trade-offs should be determined through a multi-stakeholder process involving all interested and affected parties. Costing for different purposes (environmental, economic and social) can be used as an instrument to identify effects of energy developments and facilitate discussions. However, final decision should not be based solely on monetary valuation. In assessing non-quantifiable impacts, various well-known qualitative approaches and techniques can be used to take non-monetary impacts and externalities into account. Such action may help in the application of principles contained in legal instruments like the Aarhus Convention. Sustainability has also to be monitored and measured continually, addressing the whole energy life cycle.[5]

Energy challenges for the Commission on Sustainable Development review session

16. Civil society and Governments can use energy as a tool to solve crises threatening to destroy ecosystems on which humanity depends. Using the

opportunities provided by the Commission on Sustainable Development (CSD) review session, the following possibilities should be explored:

(a) Developed countries setting an example for all countries on how to implement sustainable energy policies, including through showcasing how to integrate sustainable energy policies into all other sectoral policies;

(b) Developed countries taking the lead in using safe and clean energy strategies, promoting energy-saving measures, changing unsustainable patterns of consumption and production relating to energy and developing and ensuring the sustainable use of renewable energy technologies in a determined and concerted way, within the current decade, using targets and timetables;

(c) Developed countries improving and accelerating the transfer of appropriate, clean energy technologies to developing countries via partnerships, while respecting local needs and priorities, and developing policies based on a phase out of environmentally harmful subsidies (perverse subsidies) and consistent promotion of energy conservation and renewable energy;

(d) All countries respecting their international commitments and working together towards achieving ambitious quantified pollution reduction targets, in particular to compensate for climate destabilization;

(e) All countries empowering themselves with adequate capacity and democratic institutions to plan, finance, manage and monitor their energy systems, making sure they are conducive to sustainable development, and developing trans-disciplinary scientific cooperation that is responsive to social demands, using research institutes and NGOs to influence production and consumption practices;

(f) All countries engaging in the fight against energy deprivation, favouring South-South-North cooperation, i.e., allowing least developed countries to first select an energy strategy permitting them to implement their sustainable development plan and strategies using the cleanest energy possible and leapfrogging over obsolete technologies;

(g) International organizations consistently supporting within their work programmes countries' transition to sustainable energy systems. Unsustainable forms of energy, such as nuclear power and large hydropower schemes, should not be supported and energy lending should be shifted towards sustainable energy solutions. Governments and international organizations should establish the institutional basis for promoting renewable energies at the international level.

II. Industrial development

Trends

17. Since its inception, the CSD process has explicitly recognized that sustainable industrial policy is at the heart of development strategies, encompassing a variety of interrelated social, economic and environmental objectives. At the sixth session of the CSD, the report of the Secretary-General highlighted that: "policy reforms for sustainable growth are necessary to provide the framework within which industrial development can take place in a manner that is conducive to both social development and environmental protection".[6]

18. The fundamental issue remains how to pursue responsible industrial growth without compromising on sustainability.[7] Achieving sustainable development is about improving quality of life for all, especially vulnerable populations — the poor, women, the elderly and children.

19. There remains within the sustainability discourse a bias towards taking the traditional economic model of exponential industrial development as a starting point, even though technological processes alone have not managed to make sustainability a reality in developed industrial economy countries.

20. The essence of sustainability is to decouple material progress from harmful impacts on society and the environment by putting the three elements of sustainable development on complementary and, hopefully, mutually reinforcing tracks.[8]

21. Taking into account the context of international commitments to sustainability, sustainable industrial development is essentially about achieving sustainable consumption and production.

Challenges

22. The unique position of developing countries is posing challenges to achieving sustainable industrial development. Many actors, particularly in the industry and government sectors, continue to believe that sustainability concerns come second to achieving priorities in industrialization, employment creation and poverty reduction in developing countries. Other experts suggest that difficulties faced by developing countries in obtaining the necessary technology or management techniques make it challenging for them to manage the risks of inevitable industrialization.[9]

23. Despite the existence of policy frameworks encouraging sustainable growth, industrial development is not taking place in a manner that is conducive to either social development or environmental protection. This points to major challenges in making sustainable consumption and production a reality.

Limited follow-up

24. Research done by NGOs has shown a lack of follow-up on international commitments relevant to sustainable consumption and production.[10] Global surveys have found slow progress in most areas. For example, 40 per cent of Governments surveyed were not even aware of the United Nations guidelines for consumer protection. Of 52 Governments that responded (150 Governments approved the guidelines in 1999), only 56 per cent promote research on sustainable consumption, and the same percentage use relevant economic instruments such as green taxes; only 54 per cent of the respondents measured the progress of their nations towards more sustainable consumption patterns.

25. Such findings illustrate the slow progress being made in international commitments to implement sustainable consumption and production. The global dialogue on sustainable consumption and production generated by the Marrakech Process[11] is regarded by many as a success in following through on our international commitments; this process has not yet initiated reliable targets to measure whether real progress is being made on the ground.

Limited integration across global commitments

26. Another persistent challenge to the concrete implementation of sustainable consumption and production is the lack of clarity on how the sustainable consumption and production agenda connects to the traditional development agenda. The Second International Expert Meeting on the 10-Year Framework of Programmes for Sustainable Consumption and Production (Costa Rica, September 2005), emphasized the importance of linking work on sustainable consumption and production to poverty reduction and the attainment of the Millennium Development Goals, and that sustainable consumption and production policies should be integrated into national sustainable development strategies, including poverty reduction strategies where applicable.

27. Despite such assertions, information and guidance on how all actors, particularly industry, are meant to reconcile these various global commitments is still an area that needs to be addressed. All in all, the sheer volume of global commitments on issues that straddle the discourse on sustainable development is daunting, and there is a pressing need for clarity on which targets to pursue, how these targets relate to each other, etc. Talk must now be turned into action.

Skewed focus on sustainable production

28. Industry has devoted a greater focus on sustainable production, without enough emphasis on the demand/consumption side of the equation. Many people might feel that this is a natural focus, given that industry is essentially a "producer", not a consumer of goods and services. However, the NGO sector strongly asserts such a perspective turns a blind eye to the impact of production processes in the use and disposal phases and furthermore that industry is in itself a major consumer of raw resources. More needs to be done by industry to actively support sustainable consumption. Increasing the efficiency of production processes is not enough.

29. This claim has been consistently supported by studies undertaken by the World Resources Institute (2000),[12] the Economic Commission for Europe (ECE, 2001)[13] and the Organization for Economic Cooperation and Development (2002).[14] These show that consumption has proceeded at a much faster pace than that with which resource efficiency and technological advances in cleaning up production have been achieved. In particular, the resource efficiency gains brought about by the rise of e-commerce and the shift from heavy industries towards knowledge- and service-based industries have been more than offset by the scale of economic growth and consumer choices that favour energy- and material-intensive lifestyles.[15] As such, the expectation that the problem of overconsumption would be addressed if eco-efficiencies are attained with the production sphere has not been realized.[16]

30. Thus the recommendations from the last expert meeting on sustainable consumption and production, held in Costa Rica, to use existing networks like national cleaner production centres as vehicles to mainstream sustainable consumption and production are encouraging. Just as national cleaner production centres engaged specialized expertise, technology and resources to mainstream sustainable production, likewise similar resources must be expended in order to sensitize business and industry on the consumption side.[17]

Actions taken on sustainable industrial development

31. The Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation), chapter III, committed all actors in 2002 to:

> "accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste".

32. In this respect, the Johannesburg Plan of Implementation has been unequivocally clear that industrial development has a role to play in promoting sustainable development. In doing so, industrial development can contribute to poverty eradication, creating employment and integrating women into the development process.

33. Building on previous frameworks, such as Agenda 21 and the 10-Year Framework of Programmes for Sustainable Consumption and Production, which was mandated by the Johannesburg Plan of Implementation, addresses how we are to meet the challenges of sustainable development with usable tools and policies. Along with practical guides such as United Nations guidelines for consumer protection (section G on sustainable consumption), it is clear that, as an international community, we have the necessary commitments and know-how to achieve sustainable development. The NGO community is convinced, however, that what is missing is the concrete political will and predictable and adequate resources to make things happen.

34. Examples from real life highlight the difficulties in this area:

(a) One encouraging example is the United Nations Environment Programme-led sustainable consumption Asia project, including least developed countries and six European countries, in a multi-stakeholder process. The resulting manual *Advancing Sustainable Consumption in Asia* clearly points out how sustainable consumption policies contribute to achieving poverty alleviation goals in the region;

(b) There is also a similar example, well documented by Consumentenbond, the Dutch consumer organization,[18] which has 650,000 members, which conducted a few years back research on corporate social responsibility aspects of production in four product areas: chicken and pork, clothes, wooden floors and mobile telephones.[19]

The burden of achieving sustainable industrial development

35. Relying on technological solutions alone cannot be the sole approach to ensuring sustainable industrial development in developing countries. In particular, overconsumption by affluent consumers and producers in these countries and the significant impact on social and environmental crises needs to be noted.

36. Communicating on the viability of existing sustainable systems from the South, as well as South-South exchanges on sustainable consumption and production, will be crucial to mainstreaming sustainability as a global phenomenon, rather than one framed and driven by economically advanced countries. This will involve discussion on the nature and types of foreign direct investment and overseas

development assistance as well. Linking this debate to ongoing discussions in the World Trade Organization, particularly the non-agricultural market access negotiations, the services negotiation, and the contentious bilateral and regional free trade agreements that are exacting World Trade Organization-plus commitments from Member States, will be imperative. Trade issues have the potential to undermine development in developing countries, including sustainable development.

37. The NGO sector would like to stress that discussing whether it is increased consumption that feeds production or increased production that raises consumption levels is purely academic. The NGO sector further stresses, "the reality is that in the consumption chain (whether this consumption is by producers or consumers) both patterns and levels of consumption need to be addressed at the same time".[20]

38. Specifically, supply and demand are both part of a single system, rather than separate and distinct processes. The challenge therefore is how to address sustainability through the entire consumption chain, from producers to consumers. In doing so, the need to address reduction in consumption by societies that are contributing to the ill effects associated with consumption is not a radical proposition, and arguably not a new concept in modern societies.

39. Though it may seem like an end-of-pipe solution, in fact, we are addressing a problem at its source.[21] Cleaning up production has to outpace consumption or keep pace with it in order for sustainable consumption to become a reality. The issue of reduced consumption levels has also to be addressed both by developed countries and the affluent elements of developing countries. Ultimately, the burden of achieving sustainable industrial development should be distributed appropriately among key actors.

Challenges for the Commission on Sustainable Development review session

40. The NGO sector suggests that governments and industry are the key drivers of sustainable industrial development. The following are a few specific recommendations for each sector to be pursued during the CSD review session.

Governments

41. It is not always necessary to invent new policy. There needs to be better implementation of existing policies. Key issues include:

(a) Ensuring coherence between international commitments such as the Millennium Development Goals, the United Nations guidelines for consumer protection, Agenda 21 and the Johannesburg Plan of Implementation;

(b) Taking a stakeholder approach, as advocated in CSD processes;

(c) Establishing laws and policies to ensure government and industry compliance with and implementation of human rights standards, including stakeholder participation and transparency;

(d) Showing transparency, introducing "right to know" principles, such as that following the Aarhus Convention on environmental information;

(e) Recognizing government as the key driver for sustainable consumption and production policies and exercising leadership, for example, by ensuring sustainable procurement policies, enforcing regulations and using economic and social instruments for sustainable development;

(f) Minimizing resource utilization: for example, through greater efficiency in the use of energy and resources, minimizing waste generation, sound pricing and phasing out environmentally harmful subsidies;

(g) Developing smart communication strategies and promoting actionable information through education and information programmes on impacts of consumer choices and behaviour, efficient use of materials and recycling.

Business and industry

42. Key issues include:

(a) Investing in "responsible" products and services;

(b) Reducing costs through waste reduction, energy efficiency, renewable energy, pollution prevention and resource productivity (including human productivity);

(c) Encouraging business innovation to make responsible consumption a real choice for consumers, including principles like asset retention;

(d) Providing reliable product information at the point of purchase. About 80 per cent of purchasing decisions are made in stores against a background of information given in the store itself;

(e) Being transparent above and beyond global minimum standards;

(f) Promoting common information such as labelling standards based on Life Cycle Analysis, and controlled by an independent third party;

(g) Increasing the availability of more detailed, smart information tools so that all consumers can reap educational benefits of new technologies; for instance, using informational bar codes and the Internet. By the end of 2005, the Asia-Pacific region will have more Internet users than the United States: a total of 192 million users, up from 55 million in 2000, representing an increase of 105 per cent;[22]

(h) Ensuring corporate responsibility by supporting "right to know" legislation at the national level and ensuring effective public participation in decision-making processes;

(i) Ensuring that policies and practices comply and/or do not affect human rights.

The NGO community

43. While business and governments should take the lead in implementing sustainable consumption and production, the wider NGO community will continue to have a key role to play as well. We must act in:

(a) Representing the social and environmental interests of consumers in all relevant national and international forums;

(b) Undertaking appropriate political or economic action in support of sustainable consumption and production;

(c) Negotiating with governments, manufacturers and others to ensure that products and services are socially and environmentally sound. Such advocacy should take place regardless of whether the products are domestically made or imported;

(d) Educating consumers on sustainable consumption, aiming to change attitudes and behaviour towards more sustainable product selections and lifestyle choices; raising consumer awareness of production and marketing practices that promote expectations and lifestyles not consistent with sound environmental policies;

(e) Providing information to consumers on products and services, including regular and thorough environmental and social impact assessments of products and services in comparative testing and surveys, and demanding that manufacturers and suppliers provide this so consumers can make environmentally informed choices;

(f) Highlighting outstanding examples of sustainable consumption and production;

(g) Developing visions for changes to sustainable patterns that combine the three pillars of sustainability.

44. The future of industrial development lies in its ability to meet the challenges of sustainability. Overcoming these challenges requires strong political will to meet global commitments, a meaningful consideration of the unique needs and aspirations of developing countries and ensuring that these commitments are complementary and do not drain valuable resources through duplication. Consequently, to arrive at a common vision of sustainable development, an alliance must be forged between all segments of society.

III. Air pollution/atmosphere

Trends

45. The scale and speed of global industrialization, stimulated by globalization and accelerated by trade liberalization, has led to unabated urbanization and motorization trends in major cities of the world, causing even more fossil fuel consumption and an increase in common pollutants, including sulphur dioxide, particulate matters, volatile organic compounds, ozone, lead, carbon monoxide and nitrogen oxide. The transport sector/vehicle emission is by far the major source of air pollutants.

46. Transboundary atmospheric problems such as haze, "atmospheric brown clouds", acid deposition and dust and sand storms show no signs of abating, endangering our health and adversely affecting the environment. Asthma and other respiratory and pulmonary effects, impairment of visual perception, gradual decrease in intelligence and premature deaths are on the rise.

47. The full impacts of atmospheric pollution on many species groups, especially those beyond the urban environment, as well as on agriculture and biodiversity, in general, are largely unknown and undocumented. The contribution of intensive agricultural and unsustainable practices such as straw burning in air pollution is a cause of concern. The transboundary haze issue that regularly affects South-East Asia is closely linked with deforestation and the expansion of commercial plantations, especially oil palm, in forested areas.[23]

48. Indoor air pollution is on the increase. Poor ventilation, congestion and the use of synthetic materials for building and furnishing, household care products such as glues, paints, paint strippers, wood preservatives, aerosol sprays, cleaners and disinfectants, moth repellents, air fresheners and stored fuels release chemicals resulting in elevated levels of indoor air pollution, creating the so-called sick building syndrome. Rural populations in developing nations suffer from the health-threatening smoke generated by burning traditional fuels like firewood, charcoal and cow dung used for cooking and heating.

49. Other sources of contamination of the air are chemicals originating from pesticide use in agriculture and extensive use of solvents in the electronics industry, textile and engineering sectors. More and more chemical industries are being established in developing countries where there is insufficient capacity to monitor, control and dispose of hazardous chemicals. Unsustainable production and consumption patterns and the adoption of post-industrial lifestyles in developing countries are contributing to worsening air quality.

Challenges

50. Institutions, international conventions, legislative frameworks, policies and strategies are in place to tackle air pollution issues. The multidimensional nature of air pollution problems and the lack of technical and financial capacities are hindering effective implementation on the ground and good intentions are not being translated quickly or adequately enough into concrete actions that improve overall air quality.

51. The International Convention on Chemicals Management and the Strategic Approach to International Chemicals Management will be useful to draw attention once again to these problems.

52. Practical issues still hinder progress in resolving problems. Air quality information for reporting, education and encouraging participation in policy formulation and clean air management is not readily available. Air quality monitoring, data collection and assessments are not sufficient, especially in most developing countries. Monitoring activities remain minimal (limited numbers, poor maintenance), and data is not always reliable. Differing monitoring techniques make comparisons difficult. Air pollution regulatory agencies in many developing countries often lack the technical capacity, adequate funds and even political teeth to sustain their work on air pollution index monitoring and enforcement.

53. Regional experiences in dealing with transboundary air pollution problems highlight the need to strengthen coordination and consultation within and between Governments and with local communities in monitoring the enforcement of preventive measures. It also underscores the need for the adoption of national legislations to sanction all violators, including companies.

Successful efforts in tackling air pollution problems

54. A notable success story in the international arena on improving air quality comes from the regulation of chlorofluorocarbons under the Montreal Protocol on ozone depletion. Chlorofluorocarbon production has dropped by 87 per cent between 1988 and 1997.

55. Successful efforts at the national level to integrate environmental and economic concerns have been a carefully calibrated combination of regulation and economic instruments to internalize environmental costs into product process. Some examples of these national efforts include:

(a) The European Union Directive (REACH) that imposes responsibilities on companies to prove that any chemical they produce or import in amounts greater than one ton per year is safe;

(b) The Republic of Korea's Indoor Air Quality Management Act, which set standards for formaldehyde and other polluting construction materials and was applied to 17 facilities, including hospitals, libraries, markets and subway stations;

(c) The United States Emergency Planning and Community Right-To-Know Act, which created a national database on toxic emissions and releases from manufacturing plants. The Toxic Releases Inventory allows citizens and the media to publicize the identity of major sources of toxic chemicals. However, current trends in the United States to deregulate are quite disturbing;

(d) The pollution levy system and reduced subsidies on the use of coal in China;

(e) The levy on the palm oil industry in Malaysia to reduce air pollution;

(f) Japan's enactment of a law on compensation for health damage caused by air pollution, which reduced sulphur dioxide emissions;

(g) Following many other countries, Thailand and Malaysia have now introduced differential pricing for leaded gasoline to address the lead problem.

NGOs, air pollution/atmosphere and the Commission on Sustainable Development review session

56. During the CSD review session, NGOs will challenge Governments to use the following as a basis for the CSD 15 outcome document:

(a) Prioritization of environmental governance issues, especially the need for more openness and transparency and addressing the importance of access to accurate, reliable and timely information, public participation in decision-making and access to justice in environmental matters;

(b) Empowering civil society organizations, including consumer groups, environmental organizations and locally affected communities;

(c) The need for adequate funding to build capacity of and technical expertise in air quality monitoring as well as the impact of chemicals on the atmosphere;

(d) There is a need to learn from the successes in order to replicate them, while acknowledging the differing circumstances of each issue;

(e) Greater coherence and cooperation between different multilateral environmental agreements and the multiplicity of assessment mechanisms such as the Millennium Ecosystems Assessment, the UNEP Global Environment Outlook and the Intergovernmental Panel on Climate Change (IPCC), etc;

(f) Better coordination of regional and national efforts on air pollution initiatives, regulation and enforcement measures based on sound scientific inputs;

(g) The need to consider issues pertaining to intellectual property rights and access to environmentally safe and sound technologies and the need to regulate industry, where appropriate;

(h) The development of integrated transport planning and bottoms-up approaches to urban management and development, as well as the need for community consultation and participation in planning;

(i) Tackling unsustainable patterns of consumption and production;

(j) Making a funding mechanism through the Global Environment Facility, similar to the one under the CFC Protocol, replicable in other areas pertaining to atmospheric pollution.

IV. Climate change

Trends

57. Throughout the last year, humanity has suffered dramatically due to apparent change in the climate and weather systems. In addition, IPCC, in its Third Assessment Report, raised the following pertinent questions:

(a) Is the meltdown of the Greenland ice sheet or the destabilization of the West Antarctic ice sheet dangerous?

(b) Is it dangerous to put 300 million people more at risk of contracting malaria? 50-120 million more people at risk of hunger? 100 million more people at risk of coastal flooding? More than 3 billion people at risk of water shortage?[24]

(c) Is significant damage to crop production in tropical and subtropical countries dangerous, which could, among other things, reverse progress in agricultural self-sufficiency in many developing nations?

(d) Are the annual deaths of 150,000 additional people, and 5 million more cases of debilitating diseases dangerous?[25]

58. The answers seem painfully obvious. Yet the refusal by key Governments to take these obligations seriously indicates either ignorance of the magnitude and immensity of the threat, or gross negligence in meeting their obligation to protect their populations by preventing dangerous climate change.

59. Scientific knowledge is increasing constantly. Some of the important new findings since the publication of the IPCC Third Assessment Report include:

(a) A major international study published in *Nature*,[26] which predicts that mid-range climate change scenarios will doom a million species to extinction by mid-century;

(b) The Arctic Climate Impacts Assessment commissioned by the Arctic Council[27] confirms that the Arctic is warming much faster than the rest of the globe and with global consequences including, but not limited to, sea level rise;

(c) The United States National Center for Atmospheric Research concludes that the amount of the Earth's surface suffering from drought has doubled in the last 30 years, at least half of that as a result of increased temperatures rather than changes in precipitation;[28]

(d) WHO has conservatively estimated that climate change is already causing 150,000 deaths and about 5 million serious illnesses per year, numbers which are expected to increase exponentially over the coming decades.[29]

Challenges in implementing global commitments — equity and ecological limits

60. Agenda 21, the Johannesburg Plan of Implementation and the United Nations Framework Convention on Climate Change (UNFCCC) are key instruments for addressing climate change. NGOs wish to remind Governments at CSD 14 of their obligations with regard to climate change.

61. Article 3 of the United Nations Framework Convention on Climate Change (UNFCCC) states:

> "The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse affects thereof."

Article 2 states:

> "The ultimate objective of this Convention ... is to achieve ... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system ..., to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

62. Thus, it is the primary legal obligation of all Convention parties to prevent dangerous climate change and to agree on what constitutes "dangerous" climate change.

63. While discussions on long-term climate policy generally focus on stabilization levels for concentrations of greenhouse gases in the atmosphere, expressed in parts per million of carbon dioxide equivalent, NGOs consider that this is problematic for three main reasons:

(a) There is still considerable uncertainty about the precise sensitivity of the climate, that is, the long-term consequences of stabilization at a given level. Until recently the "best" estimate of the climate response to the doubling of carbon dioxide concentrations has been a 2.5° centigrade increase in global temperature. Recent studies have revealed that the climate sensitivity is more likely to be in fact closer to 3° centigrade, with a significant risk of it being much higher;

(b) Many have assumed that prevention of dangerous climate change would be associated with the stabilization of greenhouse gas concentrations at above current levels and sometime in the coming century or century and a half. However, under any scenario that avoids catastrophic climate change, concentrations are going to have to peak at as low a level as possible and then be reduced as rapidly as possible thereafter, or major impacts such as sea level rise will continue to increase for centuries;

(c) The numerical expression of a target for the concentration of a colourless odourless gas is utterly devoid of any means to relate it to human experience, i.e., the very impacts which would be associated with a given degree of temperature rise, and can be bandied about by pundits with no responsibility for the magnitude of human suffering that it entails.

64. NGOs are of the view that global mean temperature is the most appropriate surrogate for climate impacts of all kinds in operationalizing article 2. It is recognized that this has limitations, but policy needs to have a relatively simple measure to guide action and there is no other readily obvious measure that can be used in setting global targets. Where there is uncertainty in converting local and regional estimates of damages to the global mean level the precautionary principle should be applied. Once a global mean surface temperature limit has been agreed, this needs to be converted into greenhouse gas emissions over time frames ranging from five-year commitment periods to centuries.

65. Developing countries are most at risk from climate change, their problems increasing rapidly with rising temperature. Human activities leading to dangerous climate changes are caused largely by the consumption and production patterns of the wealthy industrialized countries impacting disproportionately the poor. Setting strong climate targets is therefore an equity issue, both in terms of present and future generations.

66. Due to historical and current greenhouse gas emissions, and the fact that emissions cannot be reduced to zero overnight, we are already condemned to future warming and sea level rise. This will cause increased risk of disease, hunger, water shortage and coastal flooding for between tens of millions and hundreds of millions of people. Major adaptation efforts will be required to minimize the adverse health, food security, water supply, storm and sea level rise consequences of these impacts.

NGOs outlining a basis for the outcome document at CSD 15

67. NGOs challenge the CSD Governments to address the following during their discussions at the CSD review session: climate change threatens not only the achievement of the Millennium Development Goals, it threatens to undo decades of development activities and indeed create conditions that make sustainable development impossible. "Up in Smoke"[30] concluded that a new paradigm of human progress and development was needed to slow, halt and reverse climate change as rapidly as possible ("climate friendly" development) and, at the same time, acknowledge the enormity of the task of adapting to climate change that is inevitable ("climate-proof" development).

68. NGOs also seek discussion of the following at the CSD review session:

(a) A global risk assessment of the likely costs of adaptation to climate change in poor countries;

(b) Commensurate new funds and other resources made available by industrialized countries for poor country adaptation, bearing in mind that rich country subsidies to their domestic, fossil-fuel industries stood at $73 billion per year in the late 1990s;

(c) Effective and efficient arrangements to respond to the increasing burden of climate-related disaster relief;

(d) Development models based on risk reduction and incorporating community-driven coping strategies in adaptation and disaster preparedness;

(e) Disaster awareness campaigns with materials produced at the community level and made available in local languages; coordinated plans, at the local and international levels, for relocating threatened communities with appropriate political, legal and financial resources.

69. Given the impacts enumerated above, responsible climate policy should ensure that:

(a) Global mean temperature increase should be kept below 2°C above pre-industrial levels, with the temperature being reduced as rapidly as possible after the time of peaking;

(b) The rate of warming be brought below a ceiling of 0.1°C temperature change per decade as soon as possible in order to allow ecosystems to adapt;

(c) Continuous assessment of these targets are made as our knowledge of climate change deepens and we gain experience in both responding and adapting to climate change; this would provide a good benchmark against which to measure progress on this issue, in relatively clear and simple terms. It would also give Governments something to focus on as they begin to negotiate the next phase of the climate regime after the first commitment period of the Kyoto Protocol finishes in 2012.

70. Ecological limits to climate change need to be set as a matter of urgency. Projected impacts are outlined in the following boxes, and are based upon the IPCC Third Assessment Report.[31] However, not included in this list are the relatively low but very real possibilities of abrupt and/or irreversible impacts, such as the shutdown of the North Atlantic thermohaline circulation system or the permanent disruption of the South Asian monsoon.

Box 1

Less than 1°C global mean warning

Developing countries

- Net negative market sector impacts in developing countries and net market sector gains in developed countries; applying more weight to impacts on poor countries indicates negative aggregate impacts globally
- Livelihoods of the most vulnerable populations adversely affected

Water

- Shrinking ice and snow cover disrupts hydroelectric capacity and systems dependent on spring thaw timing

Ecosystems

- Changes in growing seasons, shifts in population ranges, premature reproduction in plants, insects; birds threaten the integrity of complex systems dependent on timing of seed dispersal, pollination, availability of food, etc.
- Extinction of some critically endangered and endangered species also by rising sea levels and shrinking ranges

Box 2

1-2°C global mean warming

Developing countries

- Many developing countries will suffer from net market losses in important sectors
- Globally some regions may have net market benefits and others, principally developing countries, have net market losses
- Majority of people adversely affected by climate change and livelihoods of the most vulnerable populations dependent on natural ecosystems increasingly adversely affected

Food security

- Likelihood of significant damages to crop production in tropical and subtropical countries sufficient, among other things, to reverse agricultural self-sufficiency progress in many developing nations; heat waves will damage crops (rice unable to form grains, fruit unable to set) and livestock will suffer from heat stress (reductions of milk production and conception difficulties in dairy cows)

Water shortage

- Decreased water supply and quality will occur in regions already suffering from water scarcity and drought such as the Mediterranean region, southern Africa and arid parts of Central and South Asia, affecting half a billion people

Floods

- More flood damage will result from intense storms, especially in areas affected by deforestation wildfires, insect infestations, and ecosystem degradation

Extreme events

- Increasing frequency and intensity of extreme weather events will result in increased insurance costs and decreased insurance availability (coastal areas, floodplains)

Health effects

- Direct — increased heat-related deaths and illness, affecting particularly the elderly, the sick and those without access to air conditioning
- Indirect — more illness and death resulting from increased frequency and intensity of extreme weather events
- Increased risks to human life, risk of infectious disease epidemics and many other health risks where floods, droughts or storms increase in frequency and/or intensity

Ecosystems

- Wildfires and insect infestations will disrupt relationships in complex ecosystems already undergoing stress from direct effects of heat; increased disturbances of ecosystems by fire and insect pests
- Coral bleaching events will increase in frequency and duration, leading to destruction of brain corals and loss of related reef ecosystems
- Loss of up to 10 per cent of coastal wetlands globally from sea level rise will eliminate habitat of major migratory bird populations
- 30-40 per cent of nature reserves adversely affected

Ice sheets and sea level rise

- Meltdown of the Greenland ice sheet is likely with global mean warming above 1-3°C, which would lead to several metres' sea level rise over several centuries with disastrous consequences for millions

Box 3
2-3°C global mean warming

Developing countries

- Most regions (developed and developing countries) will suffer net market losses in important sectors that will affect global economic aggregates (e.g. net global economic losses are likely)

Food security

- 50-120 million more people at risk of hunger; food prices will increase throughout the global economy
- Crop yields will drop in regions affected by more frequent drought conditions, and there is likely to be a general decrease in cereal crop yields extending beyond the tropics to mid-latitude and temperate regions

Water shortage

- More than 3 billion more people at risk of water shortage

Floods

- 100 million more people at risk of coastal flooding

Extreme events

- The incidence of floods, droughts and other extreme events will increase

Health effects

- It is likely that 300 million more people would be at greater risk of contracting malaria and much increased exposure to dengue fever

Ecosystems

- Loss of unique ecosystems and their endemic species (e.g. Cape region of South Africa and some cloud forests)
- Substantial damage to coral reefs, reduced species biodiversity and fish yields from reefs
- Significant damage or disruption to arctic ecosystems, boreal forests, mountain ecosystems

Ice sheets and sea level rise

- Rapid decay of the Greenland ice sheet appears likely in this temperature range leading to 1 to 2 metres of sea level rise by 2500 and 2.3 to 3.5 metres over the next thousand years, depending on the extent of the heating
- The model range for sea level rise induced by thermal expansion is 0.44-1.96 metres by 2500, far greater than for 1000 years — 0.53m-1.96m (in the event of doubling of carbon dioxide)
- Increasing risk of instability or decay of the West Antarctic ice sheet

Box 4

3-4°C global mean warming

The IPCC was unable to assess impacts in details for temperatures much in excess of the 2-3° centigrade warming range due to lack of literature; however, the following general conclusions can be made:

Developing countries

- Economic damage increases more quickly

Food security

- Food security situation worsens

Water shortage

- Water shortages worsen

Floods and extreme events

- More floods and other extreme events

Health effects

- Adverse health effects worsen

Ecosystems

- Elimination of tropical glaciers and significant reduction in ice cap and temperate glacier volume will alter hydrology and dependent ecosystems
- Coral death from sea temperature increases lasting for six months or more will eliminate whole reef ecosystems
- Other ecosystems under threat include atolls, mangroves, boreal and tropical forests, alpine meadows, prairie wetlands and remnant native grasslands

Ice sheets and sea level rise

- The decay of the Greenland ice sheets appears to be virtually certain at this level of warming

Notes

[1] Report of the World Commission on Environment and Development, 1987.

[2] OECD 1952 and Principle 16 of the Rio Declaration on Environment, 1992.

[3] Principle 15 of the Rio Declaration on Environment and Development, 1992.

[4] An example of a new approach to energy management is the soft energy path (SEP), initiated by the Rocky Mountain Institute. Through that approach, between 1975 and 2000, energy efficiency produced more energy than did new power plants.

[5] A methodology has been developed by Sustainable Energy Watch (SEW) using a set of eight indicators to assess the contribution of energy policy to the eco-development of a country.

[6] E/CN.17/1998/4, para. 12.

[7] From a speech by Anna Fielder, Regional Director (CI) to the European Economic and Social Committee, 15 March 2005.

[8] Donald J. Johnston, Secretary-General OECD. August 2002, *Sustainable development: Our common future*.

[9] The Co-Chairs' summary of the working group on production processes and industrial development, the last International Meeting on sustainable consumption and production in Costa Rica.

[10] Consumers International, with the UNEP DTIE, carried out a survey of government awareness of and response to section G on sustainable consumption of the United Nations guidelines for consumer protection in 2001, launched in Bali in 2002, updated in 2004.

[11] Johannesburg Plan of Implementation, chapter III, called for the development of "a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production". The first international expert meeting on the 10-year framework took place in Marrakech, Morocco, 16-19 June 2003, organized by the Department for Economic and Social Affairs. The meeting launched the "Marrakech-Process".

[12] World Resources Institute (2000). *The Weight of Nations: Material Outflows from Industrial Economies*.

[13] Ministerial Statement, the World Summit on Sustainable Development. Regional Ministerial Meeting for the World Summit on Sustainable Development, Economic Commission for Europe (ECE), Geneva, Switzerland, 24-25 September 2001.

[14] OECD (2002). *Towards Sustainable Household Consumption? Trends and Policies in OECD Countries*.

[15] World Resources Institute (2000). *The Weight of Nations: Material Outflows from Industrial Economies*.

[16] Kanniah and Manokaran (2004). *Sustainable Consumption in the Context of Sustainable Production*. Consumers International Asia Pacific Office. March 2004.

[17] Second International Expert Meeting on the 10-Year Framework for Programmes for Sustainable Consumption and Production. Costa Rica, 5-8 September 2005.

[18] See: http://europa.eu.int/comm/employment_social/soc-dial/csr/country/netherlandsl.htm.

[19] Consumentenbond (2004). *Research conclusions on CSR*. Briefing paper forwarded by Melanie Peters.

[20] Kanniah and Manokaran (2004).

[21] Ibid.

[22] http://www.newsbytes.com/nes/01/167371.html.

[23] In response to this transboundary environmental problem, the Association of Southeast Asian Nations (ASEAN) adopted a regional haze action plan in 1997, adopted measures to prevent forest fires and to cooperate in regional monitoring and mitigating measures, further adopting in 2002 the ASEAN Agreement on Transboundary Haze Pollution. The Agreement created the ASEAN Coordinating Centre for Transboundary Haze Pollution Control, along with the ASEAN Transboundary Haze Pollution Control Fund.

[24] Parry, M., et al., "Millions at Risk", Global Environment Change, 11:3 (2001); see www.cru.uea.ac.uk/tiempo/floor0/archive/issue4445/t4445a7.htm.

[25] Supra note 24.

[26] Thomas, et al., "Extinction risk from climate change", *Nature*, vol. 427, 8 January 2004.

[27] Stott, et al., "Human contribution to the European heatwave of 2003", *Nature*, vol. 438, 2 December 2004.

[28] Jonathan A. Patz, Diarmid Campbell-Lendrum, Tracey Holloway and Jonathan A. Foley, "Impact of regional climate change on human health", *Nature*, vol. 438, 17 November 2005.

[29] Simms, A., Magrath, J., Reid, H., et al., "Up in Smoke? Threats from, and responses to, the impact of global warming on human development", 2004; see www.neweconomics.org/gen.

[30] Ibid.

[31] This summary of impacts is drawn from Climate Action Network paper entitled "Preventing dangerous climate change"; see www.climnet.org/pubs/CAN-adequacy 30102002.pdf.